

1 CLAIMS

2

3 1. A processor-readable medium comprising processor-executable
4 instructions configured for:

5 requesting media content at an accelerated rate from a source, the
6 accelerated rate being a rate that exceeds a normal playback rate;

7 receiving a media stream at the accelerated rate, wherein the media stream
8 is an uninterrupted data stream of the media content that has no intentionally
9 dropped data; and

10 rendering all content in the media stream at the accelerated rate.

11

12 2. A processor-readable medium as recited in claim 1, wherein the
13 media stream comprises a video stream and an audio stream, the rendering further
14 comprising:

15 processing the video stream and the audio stream through a playback filter
16 graph at the accelerated rate; and

17 implementing a pitch adjustment algorithm within the playback filter graph
18 to process the audio stream.

19

20 3. A processor-readable medium as recited in claim 2, wherein the
21 media stream further comprises a non-video/non-audio data stream synchronized
22 to the video stream and the audio stream, the rendering further comprising
23 processing the non-video/non-audio data stream at synchronized locations within
24 the video stream and the audio stream.

1 **4.** A processor-readable medium as recited in claim 3, wherein the non-
2 video/non-audio data stream includes data selected from the group comprising:
3 script commands;
4 metadata; and
5 captions.

6

7 **5.** A processor-readable medium as recited in claim 1, comprising
8 further processor-executable instructions configured for:
9 receiving a degraded media stream at a reduced rate, wherein the degraded
10 media stream includes a subset of data from the media stream; and
11 rendering the degraded media stream at the reduced rate.

12

13 **6.** A processor-readable medium as recited in claim 5, wherein the
14 degraded media stream comprises a video stream that has dropped video frames
15 and wherein an audio stream of the media stream has been dropped.

16

17 **7.** A processor-readable medium as recited in claim 1, wherein the
18 source is selected from the group comprising:
19 a streaming media server; and
20 a local storage medium.

21

22 **8.** A computer comprising the processor-readable medium as recited in
23 claim 1.

1 9. A processor-readable medium comprising processor-executable
2 instructions configured for:

3 receiving a media stream;
4 determining a source of the media stream;
5 determining if the source can deliver the media stream at an accelerated
6 rate; and

7 enabling and disabling variable play speed controls depending on the source
8 and on whether the source can deliver the media stream at the accelerated rate.

9
10 10. A processor-readable medium as recited in claim 9, wherein the
11 enabling and disabling comprises enabling the variable play speed controls such
12 that play speeds cannot exceed the accelerated rate at which the source can deliver
13 the media stream.

14
15 11. A processor-readable medium as recited in claim 9, wherein the
16 determining if the source can deliver the media stream at an accelerated rate
17 comprises determining an average data delivery rate from the source.

18
19 12. A processor-readable medium as recited in claim 9, comprising
20 further processor-executable instructions configured for enabling the variable play
21 speed controls if the source is a streaming media server capable of delivering the
22 media stream at the accelerated rate.

23
24 13. A processor-readable medium as recited in claim 9, comprising
25 further processor-executable instructions configured for:

1 disabling variable play speed controls in an accelerated playback range if
2 the source is a streaming media server that is not capable of delivering the media
3 stream at the accelerated rate; and

4 enabling variable play speed controls in a decelerated playback range.

5
6 **14.** A processor-readable medium as recited in claim 9, comprising
7 further processor-executable instructions configured for disabling the variable play
8 speed controls if the source is a Web server delivering the media stream as a
9 progressively downloaded file.

10
11 **15.** A processor-readable medium as recited in claim 14, comprising
12 further processor-executable instructions configured for enabling the variable play
13 speed controls after the media stream is completely downloaded from the Web
14 server.

15
16 **16.** A processor-readable medium as recited in claim 9, comprising
17 further processor-executable instructions configured for enabling the variable play
18 speed controls if the source is a local media source.

19
20 **17.** A processor-readable medium as recited in claim 9, comprising
21 further processor-executable instructions configured for playing back the media
22 stream at the accelerated rate, wherein the playing back includes rendering all
23 content within the media stream.

1 **18.** A processor-readable medium as recited in claim 9, wherein the
2 enabling and the disabling comprise altering graphical representations of the
3 variable play speed controls on a graphical user interface.

4

5 **19.** A processor-readable medium as recited in claim 9, wherein the
6 variable play speed controls include:

7 a play speed control configured to vary a playback rate of the media stream
8 between a rate that is less than a real time rate and a rate that greater than the real
9 time rate;

10 a fast forward control configured to increase the playback rate of the media
11 stream to a rate that exceeds the real time rate;

12 a rewind control configured to decrease the playback rate of the media
13 stream to a negative rate;

14 a seek control configured to access a particular playback location within the
15 media stream;

16 a next frame control configured to step the playback rate of the media
17 stream forward one video frame at a time; and

18 a previous frame control configured to step the playback rate of the media
19 stream backward one video frame at a time.

20

21 **20.** A processor-readable medium as recited in claim 9, wherein the
22 source is selected from a group comprising:

23 local media;

24 a streaming media server; and

25 a Web server.

1
2 **21.** A processor-readable medium as recited in claim 9, wherein the
3 media stream comprises data selected from the group comprising:

4 audio data;
5 video data;
6 script commands;
7 text captions; and
8 metadata.

9
10 **22.** A computer comprising the processor-readable medium as recited in
11 claim 9.

12
13 **23.** A processor-readable medium comprising processor-executable
14 instructions configured for:

15 sending a request to a media source to stream media content from a media
16 file at a non-real-time rate;
17 determining if the media source and a network link can support the non-
18 real-time rate; and
19 if the media source and a network link can support the non-real-time rate,
20 receiving and playing back the media content at the non-real-time rate.

21
22 **24.** A processor-readable medium as recited in claim 23, wherein the
23 non-real-time rate is a rate selected from the group comprising:

24 an accelerated rate; and
25 a decelerated.

1
2 **25.** A processor-readable medium as recited in claim 23, wherein the
3 non-real-time rate is the accelerated rate, the processor-readable medium
4 comprising further processor-executable instructions configured for:

5 determining that the media source and/or the network link cannot support
6 the accelerated rate; and

7 sending a request to the media source to drop data from the media content
8 and to stream remaining media content from the media file.

9
10 **26.** A processor-readable medium as recited in claim 25, wherein the
11 remaining media content is streamed from the media source within a period of time
12 equal to a period of time that would be needed to stream all the media content from
13 the media source at the accelerated rate.

14
15 **27.** A processor-readable medium as recited in claim 25, wherein data
16 dropped from the media content is selected from the group comprising:

- 17 an audio data stream;
18 video frames from a video data stream; and
19 a non-video/audio data stream.

20
21 **28.** A processor-readable medium as recited in claim 23, wherein the
22 non-real-time rate is the accelerated rate, the processor-readable medium
23 comprising further processor-executable instructions configured for:

24 determining that the media source and/or the network link cannot support
25 the accelerated rate; and

1 sending a request to the media source to stream the media content stream
2 from the media file at a normal real-time rate.

3
4 **29.** A computer comprising the processor-readable medium as recited in
5 claim 23.

6
7 **30.** A processor-readable medium comprising processor-executable
8 instructions configured for:

9 streaming a media stream to a client at a real time rate;
10 receiving a request from the client to deliver the media stream at an
11 accelerated rate; and

12 delivering the media stream to the client at the accelerated rate.

13
14 **31.** A processor-readable medium as recited in claim 30, comprising
15 further processor-executable instructions configured for:

16 determining that a network link cannot support the accelerated rate; and
17 delivering the media stream to the client at a reduced rate that is less than
18 the accelerated rate.

19
20 **32.** A processor-readable medium as recited in claim 30, comprising
21 further processor-executable instructions configured for:

22 determining that a network link cannot support the accelerated rate;
23 delivering the media stream to the client at a reduced rate that is less than
24 the accelerated rate; and

1 while delivering the media stream to the client at the reduced rate, dropping
2 data from the media stream.

3
4 **33.** A streaming media server comprising the processor-readable
5 medium as recited in claim 30.

6
7 **34.** A media player comprising variable play speed controls configured
8 to vary playback speed of a media stream depending on a source of the media
9 stream and on whether the source can deliver the media stream at a requested rate.

10
11 **35.** A media player as recited in claim 34, further comprising a playback
12 module configured to enable or disable the variable play speed controls depending
13 on the source and on whether the source can deliver the media stream at the
14 accelerated rate, the playback module additionally configured to determine the
15 source and whether the source can deliver the media stream at a requested rate.

16
17 **36.** A media player as recited in claim 34, further comprising a graphical
18 user interface (GUI) module configured to support a GUI that presents the variable
19 play speed controls to a user and enables the user to activate the variable play
20 speed controls.

21
22 **37.** A media player as recited in claim 34, further comprising an
23 application programming interface configured to expose the variable play speed
24 controls to programmatic control of a custom application program.

1 **38.** A media player as recited in claim 34, wherein the variable play
2 speed controls are selected from the group comprising:

3 a play speed control configured to vary a playback rate of the media stream
4 between a rate that is less than a real time rate and a rate that greater than the real
5 time rate;

6 a fast forward control configured to increase the playback rate of the media
7 stream to a rate that exceeds the real time rate;

8 a rewind control configured to decrease the playback rate of the media
9 stream to a negative rate;

10 a seek control configured to access a particular playback location within the
11 media stream;

12 a next frame control configured to step the playback rate of the media
13 stream forward one video frame at a time; and

14 a previous frame control configured to step the playback rate of the media
15 stream backward one video frame at a time.

16
17 **39.** A computer comprising the media player as recited in claim 34.

18
19 **40.** A media player comprising controls for varying playback speed of a
20 media stream, the controls comprising:

21 a play speed control configured to vary a playback rate of the media stream
22 between a rate that is less than a real time rate and a rate that greater than the real
23 time rate;

24 a fast forward control configured to increase the playback rate of the media
25 stream to a rate that exceeds the real time rate;

1 a rewind control configured to decrease the playback rate of the media
2 stream to a negative rate;

3 a seek control configured to access a particular playback location within the
4 media stream;

5 a next frame control configured to step the playback rate of the media
6 stream forward one video frame at a time; and

7 a previous frame control configured to step the playback rate of the media
8 stream backward one video frame at a time.

9
10 **41.** A media player as recited in claim 40, further comprising a playback
11 module configured to enable and disable the controls to reflect a current play speed
12 control capability, the current play speed control capability determined by the
13 playback module according to a source of the media stream and whether the source
14 can deliver the media stream at an accelerated rate.

15
16 **42.** A media player as recited in claim 40, further comprising a graphical
17 user interface (GUI) module configured to support a GUI graphical that presents
18 the controls to a user and enables the user to activate the controls.

19
20 **43.** A media player as recited in claim 40, further comprising an
21 application programming interface configured to expose the controls to
22 programmatic control of a custom application program.

23
24 **44.** A computer comprising the media player as recited in claim 40.
25

1 **45.** A computer comprising:

2 means for requesting media content at an accelerated rate from a source;

3 means for receiving a media data stream from the source at the accelerated
4 rate; and

5 means for rendering all content in the media data stream at the accelerated
6 rate.

7

8 **46.** A computer as recited in claim 45, wherein the media data stream
9 comprises a video data stream, an audio data stream, and a non-video/audio data
10 stream synchronized to the video data stream, the means for rendering further
11 comprising:

12 means for processing the video data stream and the audio data stream
13 through a playback filter graph at the accelerated rate;

14 means for implementing a pitch adjustment algorithm within the playback
15 filter graph to process the audio data stream; and

16 means for processing the non-video/audio data stream at synchronized
17 locations within the video data stream.

18

19 **47.** A computer as recited in claim 45, further comprising:

20 means for receiving a degraded media data stream at a reduced rate,
21 wherein the degraded media data stream includes a subset of data from the media
22 data stream; and

23 means for rendering the degraded media data stream at the reduced rate.

1 **48.** A computer comprising:

2 means for receiving a media stream;

3 means for determining a source of the media stream;

4 means for determining if the source can deliver the media stream at an
5 accelerated rate; and

6 means for enabling and disabling variable play speed controls depending on
7 the source and on whether the source can deliver the media stream at the
8 accelerated rate.

9

10 **49.** A computer as recited in claim 48, wherein the means for enabling
11 and disabling comprises means for enabling the variable play speed controls such
12 that play speeds cannot exceed the accelerated rate at which the source can deliver
13 the media stream.

14

15 **50.** A computer as recited in claim 48, wherein the means for
16 determining if the source can deliver the media stream at an accelerated rate
17 comprises means for determining an average data delivery rate from the source.

18

19 **51.** A computer as recited in claim 48, further comprising means for
20 enabling the variable play speed controls if the source is a streaming media server
21 capable of delivering the media stream at the accelerated rate.

1 **52.** A computer as recited in claim 48, further comprising:

2 means for disabling variable play speed controls in an accelerated playback
3 range if the source is a streaming media server that is not capable of delivering the
4 media stream at the accelerated rate; and

5 means for enabling variable play speed controls in a decelerated playback
6 range.

7
8 **53.** A computer as recited in claim 48, further comprising means for
9 disabling the variable play speed controls if the source is a Web server delivering
10 the media stream as a progressively downloaded file.

11
12 **54.** A computer as recited in claim 53, further comprising means for
13 enabling the variable play speed controls after the media stream is completely
14 downloaded from the Web server.

15
16 **55.** A computer as recited in claim 48, further comprising means for
17 enabling the variable play speed controls if the source is a local media source.

18
19 **56.** A computer as recited in claim 48, further comprising means for
20 playing back the media stream at the accelerated rate, wherein the playing back
21 includes rendering all content within the media stream.

22
23 **57.** A computer as recited in claim 48, further comprising means for
24 altering a graphical user interface having representations of the variable play speed

1 controls to reflect the enabling and the disabling of the variable play speed
2 controls.

3

4 **58.** A computer as recited in claim 48, wherein the variable play speed
5 controls include:

6 a play speed control configured to vary a playback rate of the media stream
7 between a rate that is less than a real time rate and a rate that greater than the real
8 time rate;

9 a fast forward control configured to increase the playback rate of the media
10 stream to a rate that exceeds the real time rate;

11 a rewind control configured to decrease the playback rate of the media
12 stream to a negative rate;

13 a seek control configured to access a particular playback location within the
14 media stream;

15 a next frame control configured to step the playback rate of the media
16 stream forward one video frame at a time; and

17 a previous frame control configured to step the playback rate of the media
18 stream backward one video frame at a time.

19

20 **59.** A computer comprising:

21 means for sending a request to a media source to stream media content from
22 a media file at a non-real-time rate;

23 means for determining if the media source and a network link can support
24 the non-real-time rate; and

1 means for receiving and playing back the media content at the non-real-time
2 rate if the media source and a network link can support the non-real-time rate.

3
4 **60.** A computer as recited in claim 59, wherein the non-real-time rate is a
5 rate selected from the group comprising:

6 an accelerated rate; and

7 a decelerated.

8
9 **61.** A computer as recited in claim 59, wherein the non-real-time rate is
10 the accelerated rate, the computer further comprising:

11 means for determining that the media source and/or the network link cannot
12 support the accelerated rate; and

13 means for sending a request to the media source to drop data from the
14 media content and to stream remaining media content from the media file.

15
16 **62.** A computer as recited in claim 61, wherein data dropped from the
17 media content is selected from the group comprising:

18 an audio data stream;

19 video frames from a video data stream; and

20 a non-video/audio data stream.

21
22 **63.** A computer as recited in claim 59, wherein the non-real-time rate is
23 the accelerated rate, the computer further comprising:

24 means for determining that the media source and/or the network link cannot
25 support the accelerated rate; and

1 means for sending a request to the media source to stream the media content
2 stream from the media file at a normal real-time rate.

3

4 **64.** A streaming media server comprising:
5 means for streaming a media stream to a client at a real time rate;
6 means for receiving a request from the client to deliver the media stream at
7 an accelerated rate; and
8 means for delivering the media stream to the client at the accelerated rate.

9

10 **65.** A streaming media server as recited in claim 64, further comprising:
11 means for determining that a network link cannot support the accelerated
12 rate; and
13 means for delivering the media stream to the client at a reduced rate that is
14 less than the accelerated rate.

15

16 **66.** A streaming media server as recited in claim 64, further comprising:
17 means for determining that a network link cannot support the accelerated
18 rate;
19 means for delivering the media stream to the client at a reduced rate that is
20 less than the accelerated rate; and
21 means for dropping data from the media stream while delivering the media
22 stream to the client at the reduced rate.

23

24 **67.** A streaming media server comprising a variable speed streaming
25 module configured to receive a request to stream media content at an accelerated

1 rate and to stream the media content at the accelerated rate without dropping any
2 data from the media content, the accelerated rate being a rate that exceeds a real
3 time playback rate of the media content.

4

5 **68.** A streaming media server as recited in claim 67, wherein the variable
6 speed streaming module is further configured to control variable play speed
7 controls of a media player executing on a client computer.

8

9 **69.** A method comprising:
10 rendering a stream of media at a real time playback rate;
11 receiving a request to render the stream of media at an accelerated rate;
12 sending a request to have the stream of media delivered at the accelerated
13 rate;
14 receiving the stream of media at the accelerated rate; and
15 rendering the stream of media at the accelerated rate.

16

17 **70.** A method as recited in claim 69, wherein the media stream
18 comprises a video stream and an audio stream and wherein rendering comprises:
19 processing the video stream and the audio stream through a playback filter
20 graph at the accelerated rate; and
21 implementing a pitch adjustment algorithm within the playback filter graph
22 to process the audio stream.

23

24 **71.** A method as recited in claim 70, wherein the media stream further
25 comprises a non-video/non-audio data stream synchronized to the video stream and

1 the audio stream and wherein rendering further comprises processing the non-
2 video/non-audio data stream at synchronized locations within the video stream and
3 the audio stream.

4

5 **72.** A method comprising:

6 receiving a media stream from a source;

7 determining the source of the media stream;

8 determining if the source can deliver the media stream at an accelerated
9 rate; and

10 enabling or disabling variable play speed controls depending on the source
11 and on whether the source can deliver the media stream at the accelerated rate.

12

13 **73.** A method as recited in claim 72, further comprising:

14 enabling the variable play speed controls if the source is a streaming media
15 server capable of delivering the media stream at the accelerated rate; and

16 disabling the variable play speed controls if the source is a streaming media
17 server that is not capable of delivering the media stream at the accelerated rate.

18

19 **74.** A method as recited in claim 72, wherein the source is a Web server
20 delivering the media stream as a progressively downloaded file, the method further
21 comprising:

22 disabling the variable play speed controls while the progressively
23 downloaded file is being delivered; and

24 enabling the variable play speed controls after the progressively
25 downloaded is completely downloaded.